Informational Meeting On Water, Sewer and Stormwater

A presentation to the
Metro Council

Thursday, Feb. 5, 2009

The Issue

Nashville is at a decision point.

- We are blessed with an ample supply of clean water;
- But, we have an aged water/sewer system.
- We have a storm water problem and no storm water policy.
- We have increasing demand for all services.
- And, we have no money to address these issues.
- We need to solve this problem now, before it becomes a crisis.

Scott Potter,

Director of Metro Water Department

Water

Omohundro Water Treatment Plant

- On the National Historic Register
- Pumping Station constructed in 1889
- Filter Plant constructed in 1928
- 90 MGD Capacity
- Zero Violations in 2008

K. R. Harrington Water Treatment Plant

- Constructed in 1976
- 90 MGD Capacity
- Zero Violations in 2008

Omohundro Water Treatment Plant

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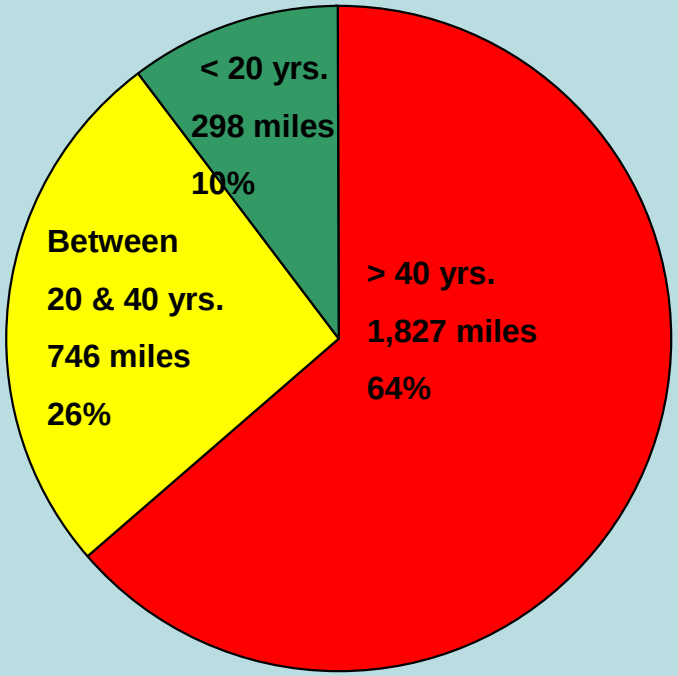
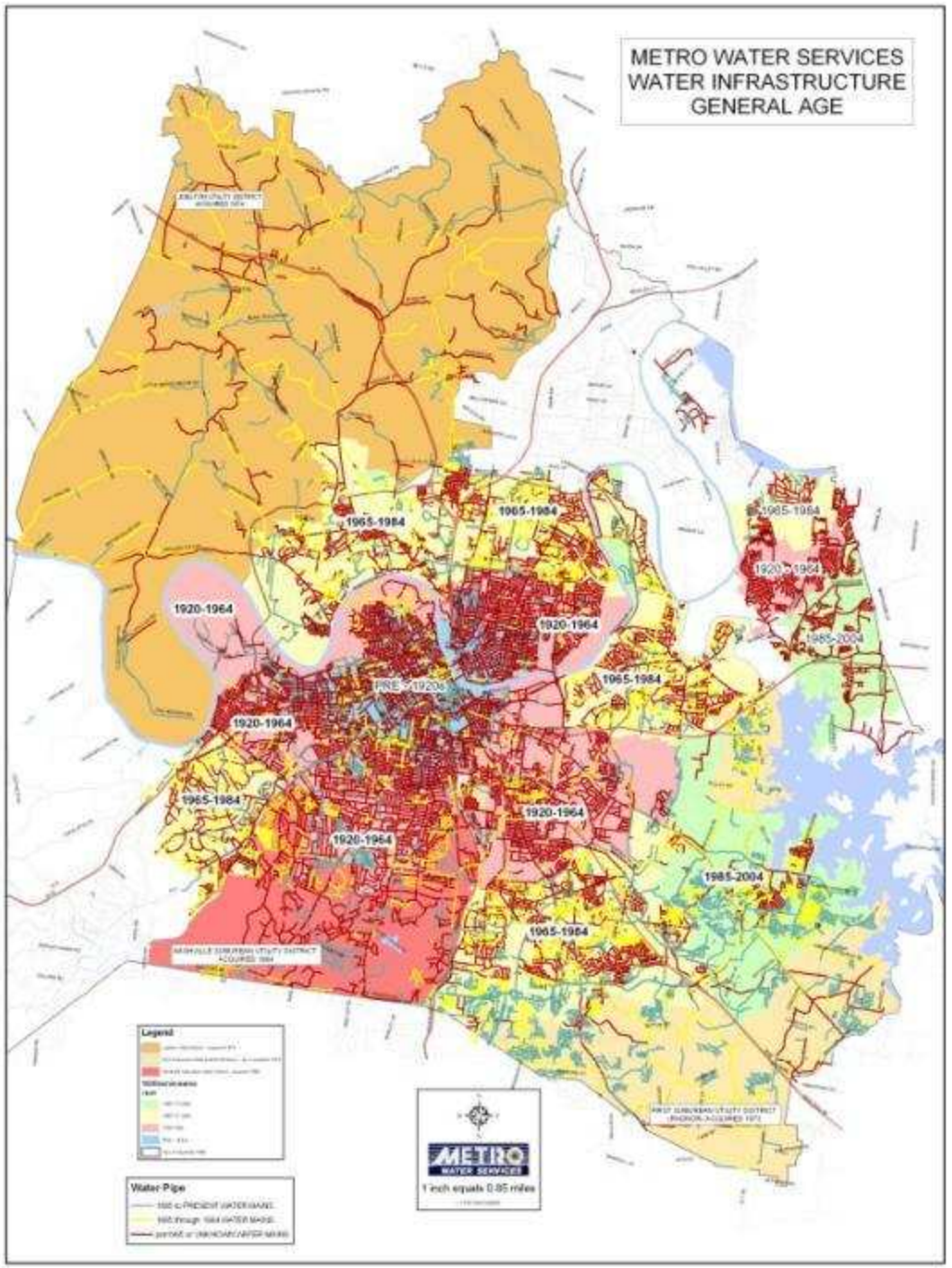
Water Infrastructure Age

- Red > 40 years old (or unknown)
- Yellow = 20 to 40 years old
- Green < 20 years old





Water Distribution System

- **2,994 miles of water mains – 1” to 60”**
- **57 Water pumping stations**
- **44 water storage tanks**

Facts in Brief: Water System

	FY 2000	FY 2008	% change
Water Customers	136,468	174,286	27.7%
Avg. Daily Treatment	89.7 MGD	97 MGD	7.8%
Max Daily Demand	107.2 MGD	137.3 MGD	28%
Distribution Lines	2,571 miles	2,944 miles	14.5%
Fire Hydrants	16,792	19,914	19%
Reservoirs	42	44	4.8%

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Construction/Repair

Rupture of a 60” transmission main in Elm Hill Pike

Elm Hill Pike as a result of 60” water transmission line failure

Water Infrastructure Rehabilitation
East Nashville Phase 2

- Original water mains installed between 1912 - 1937
- Cleaned and lined 64,000 feet of 12” main and 2,800 feet of 8” main
- Project cost = $6.9 million

RESULTS

- **Flows increased 65%**
- **Efficiency increased 135%**

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Wastewater Treatment

Central WWTP
2008 NACWA Gold Award

Capacity: 250 MGD

Wet weather capacity: 330 MGD

Initially constructed in 1958

Dry Creek WWTP
2008 NACWA Gold Award

Capacity: 60 MGD

Constructed in 1961

Located in the Rivergate area

Whites Creek WWTP
2008 NACWA Gold Award

Capacity: 75 MGD

Constructed in 1975

Located in the Bordeaux area

Biosolids Management Facility Central WWTP


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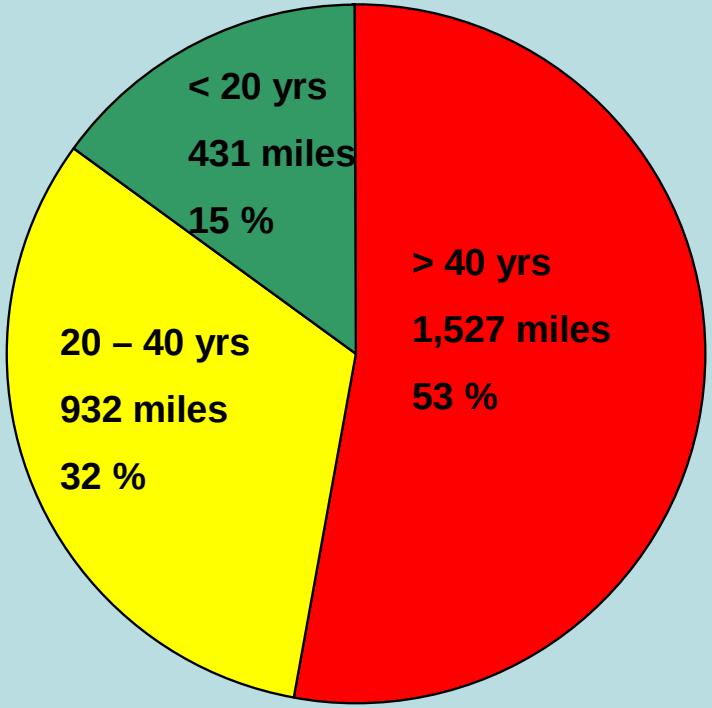
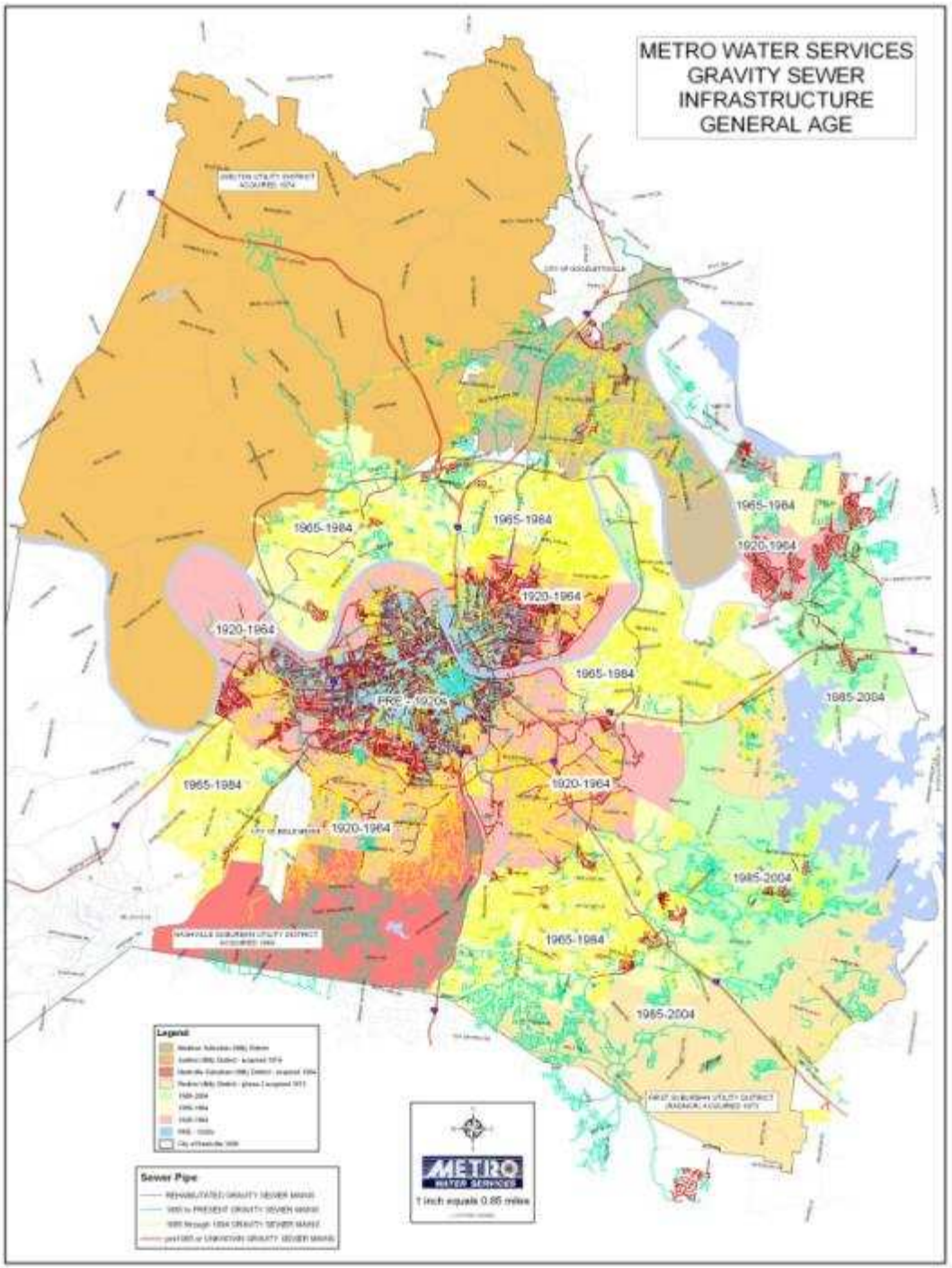
Wilson Branch CSS
Old Stone Bridge
2nd & Demonbreun St.

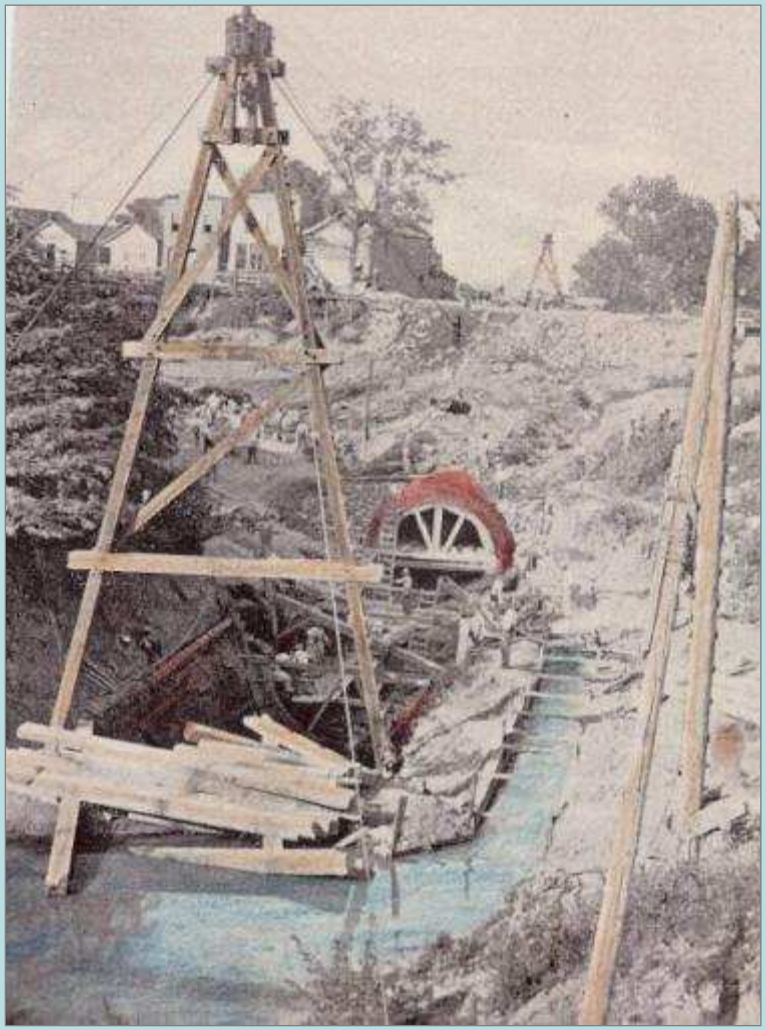
Sewer Infrastructure Age

- **Red > 40 years old (or unknown)**
- **Yellow = 20 to 40 years old**
- **Green < 20 years old**





Sewage Collection System



- Over 2,800 miles of sewer mains - 8” to 84”
- 220 miles of combined sewer mains - up to 16.5 ft.
- 103 sewer pumping stations

Facts in Brief: Sewer System

	FY 2000	FY 2008	% change
Sewer Customers	158,652	191,981	21%
Avg. Daily Treatment	122.4 MGD	144.7 MGD	18%
Sewer Pump Stations	94	103	9.6%
Sewer Pipes	2,426 miles	3,069 miles	26.5%

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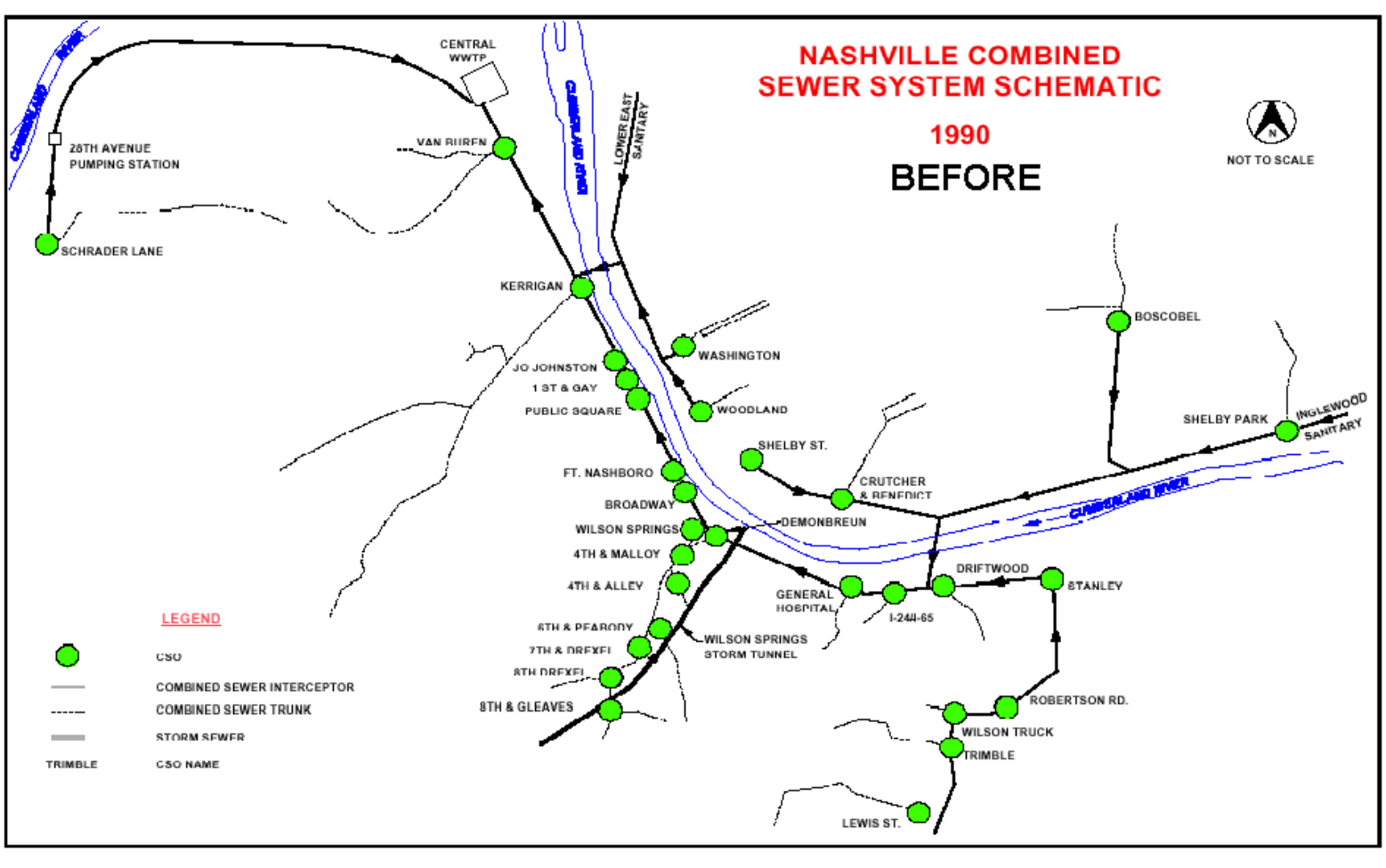
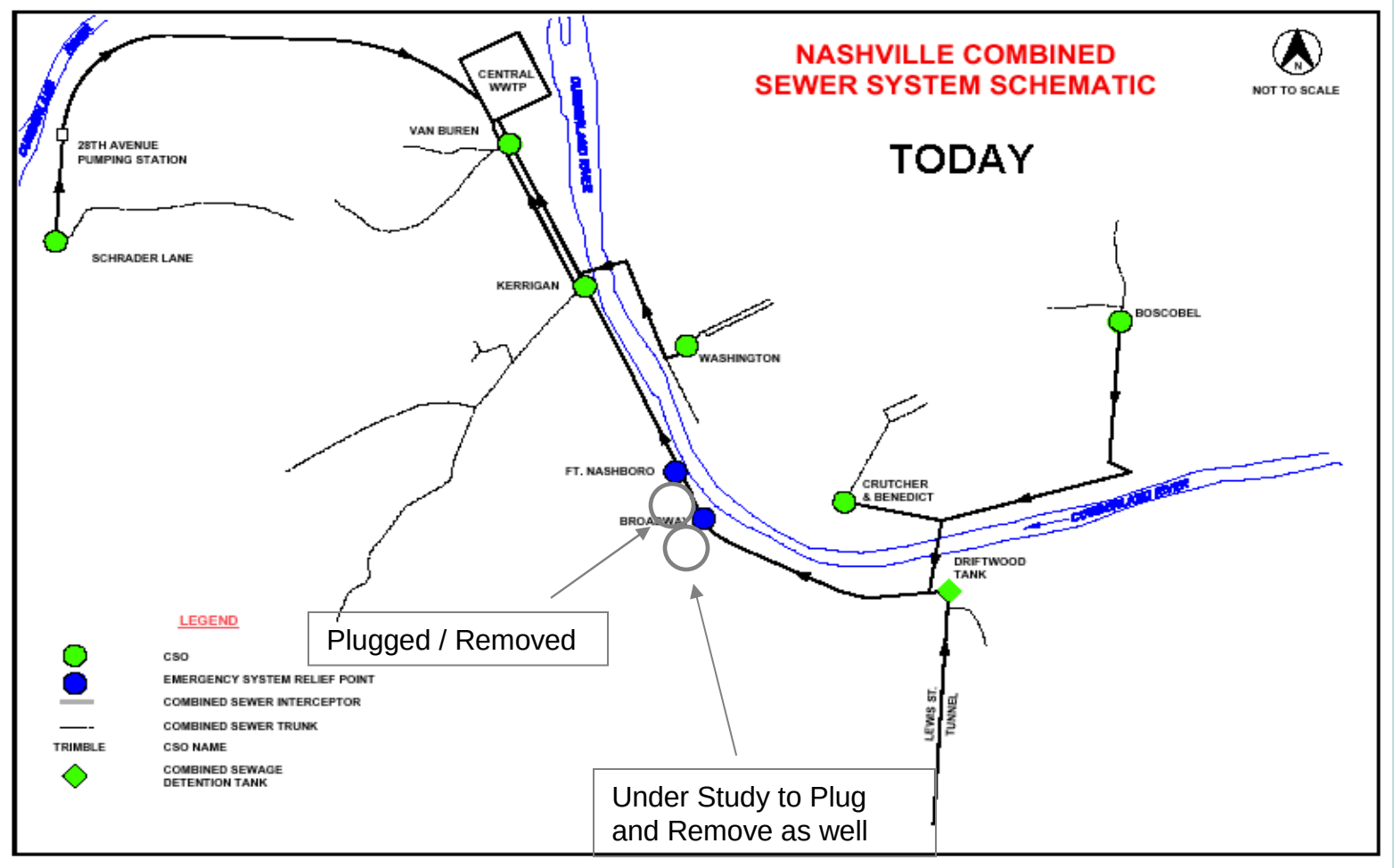
Overflow Abatement Program (OAP)



Overflow Abatement Program (OAP)



Reduced from 31 points to 6

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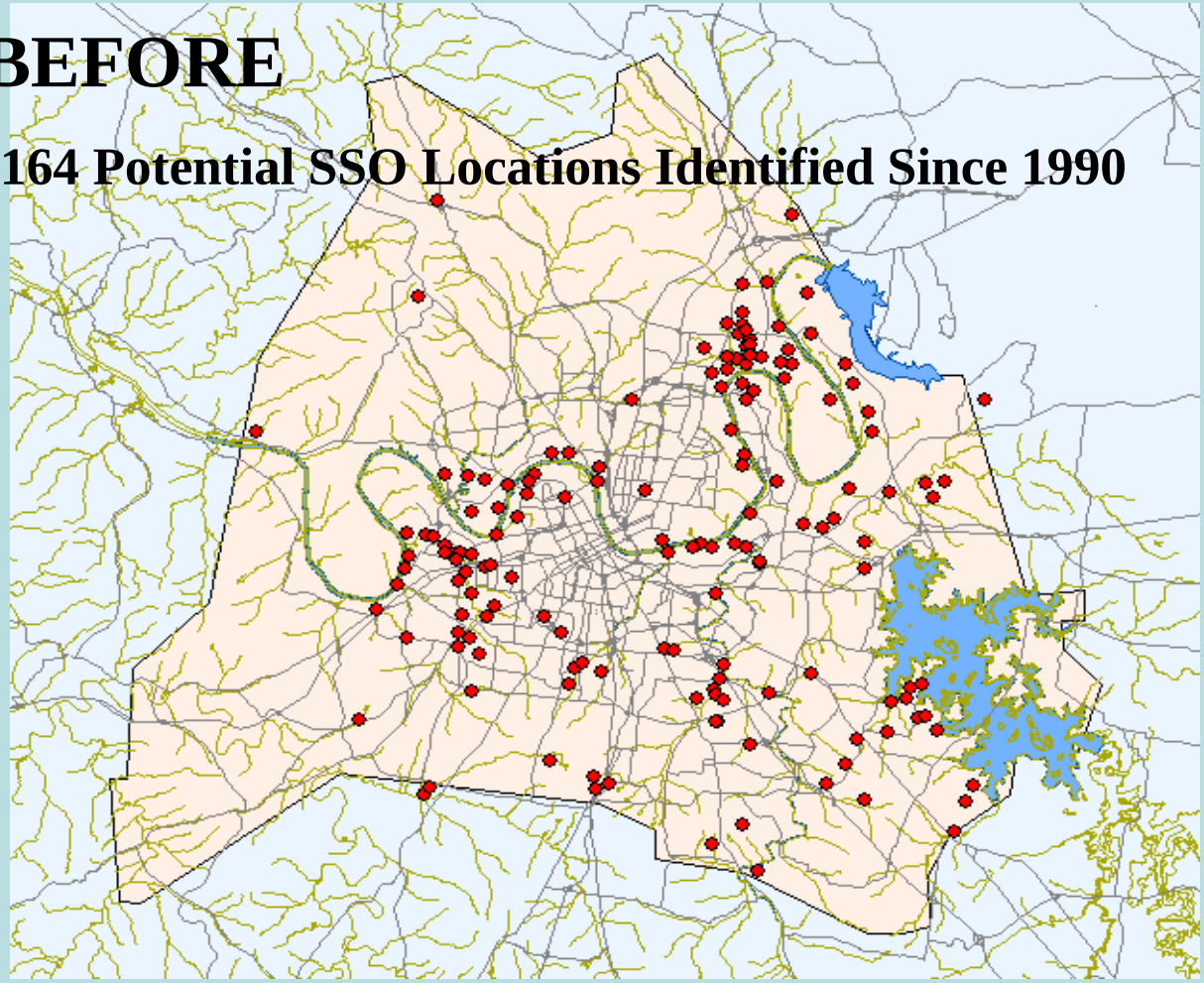
Overflow Abatement Program (OAP)
Over $780 Million since 1990

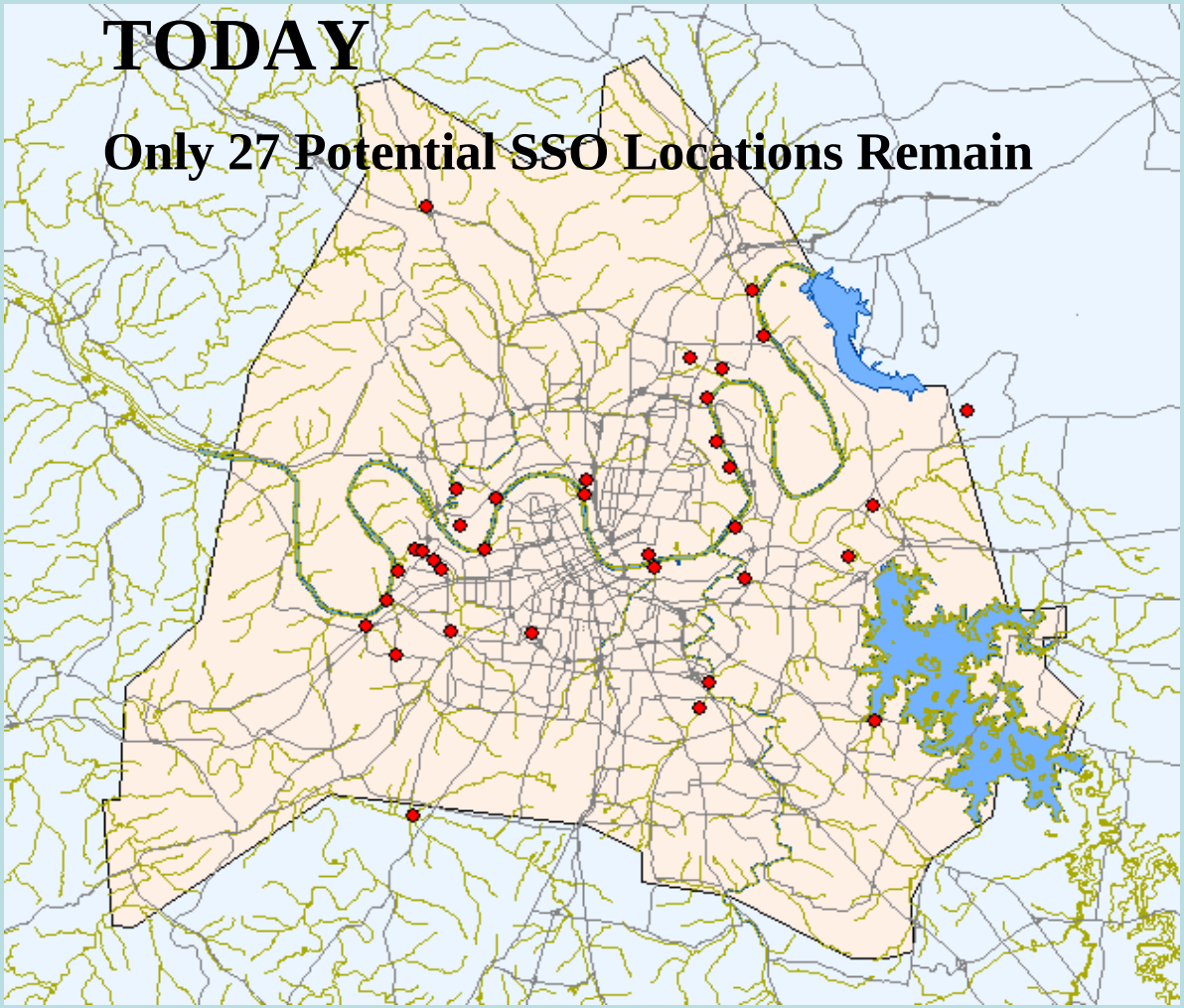
BEFORE

164 Potential SSO Locations Identified Since 1990



METRO WATER SERVICES

Overflow Abatement Program (OAP)
Over $780 Million since 1990



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Water/Sewer Rate History

Last Water Rate Increase– **FY 1995 (Residential)**

FY 1996 (All other classes)

Last Sewer Rate Increase – **FY 1996**

On May 1, 1999, the following <u>water</u> rate reductions were implemented:

- Residential decreased by 25%
- Small Commercial decreased by 20%
- Intermediate Commercial decreased by 15%
- Large Commercial decreased by 5%

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Cost Pressures Experienced by MWS

	2000	2008	change	
Salaries / Benefits	32,034,011	39,707,415	7,673,404	**24%**
Utilities	10,676,010	15,984,161	5,308,152	**50%**
Chemicals	2,460,311	4,396,881	1,936,570	**79%**
Security	664,567	1,953,552	1,288,985	**194%**
Staffing – MWS	708	670	- 38	**- 5%**

- **Demand for drinking water has increased**
- **Demand for wastewater treatment has increased**
- **Operating costs have increased**
- **Staffing levels have decreased**

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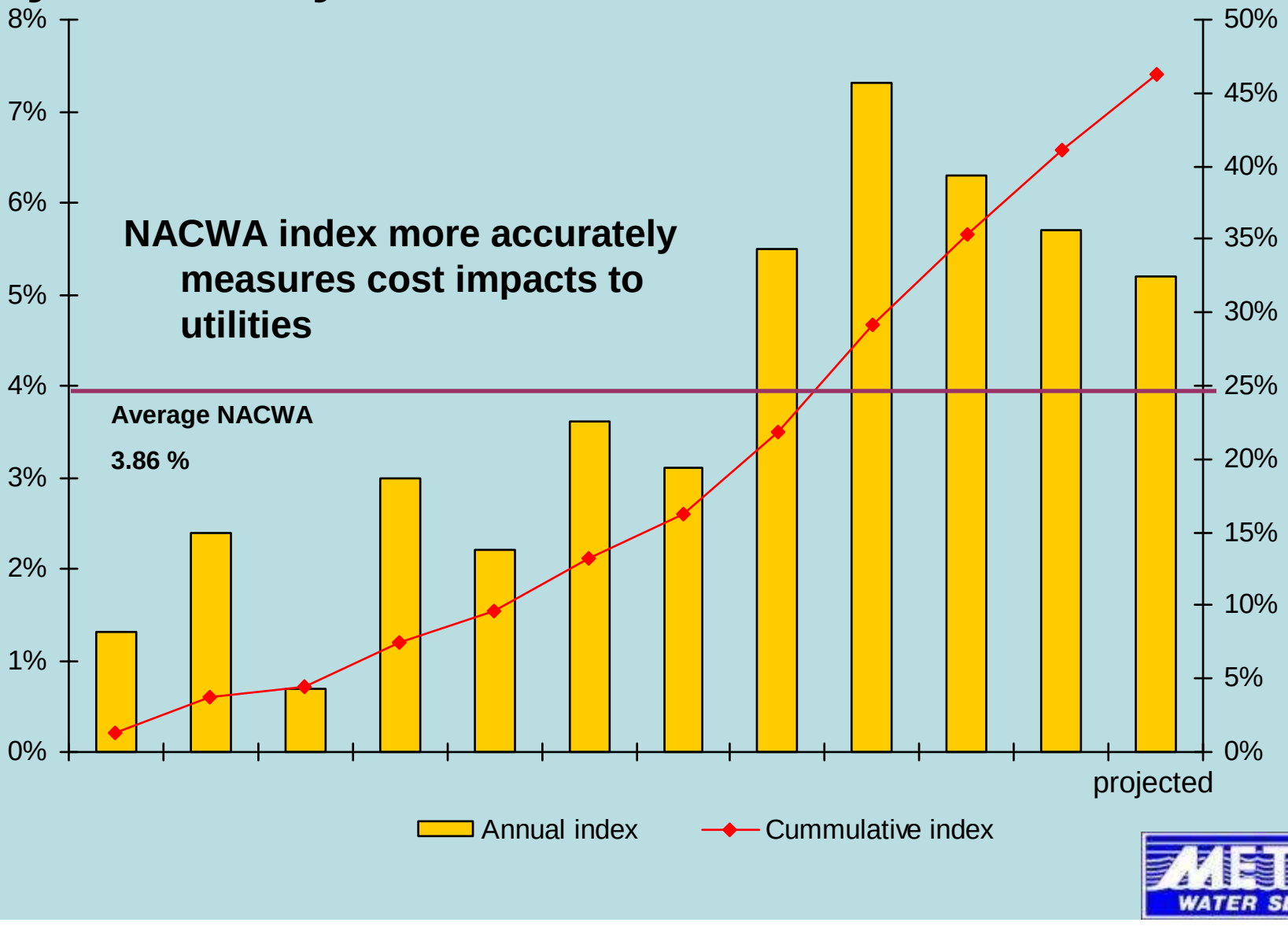
National Assoc. of Clean Water Agencies
NACWA Index (NACWA)
11-year History



Proposed Consent Decree with EPA

- Required to be compliant with the Clean Water Act
- Required to submit a plan within two years of Consent Decree entry
- Nine years to complete the plan

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Stormwater

Stormwater Program

Why do we have a Stormwater Program?

1. Federal Clean Water Act requires it
   - **Unfunded, federally mandated permit**
2. Protect the safety and quality of life of our citizens
   - **Control flooding**
   - **Reduce pollution**
3. Protect property values and promote the natural beauty and function of our streams

Stormwater Responsibilities

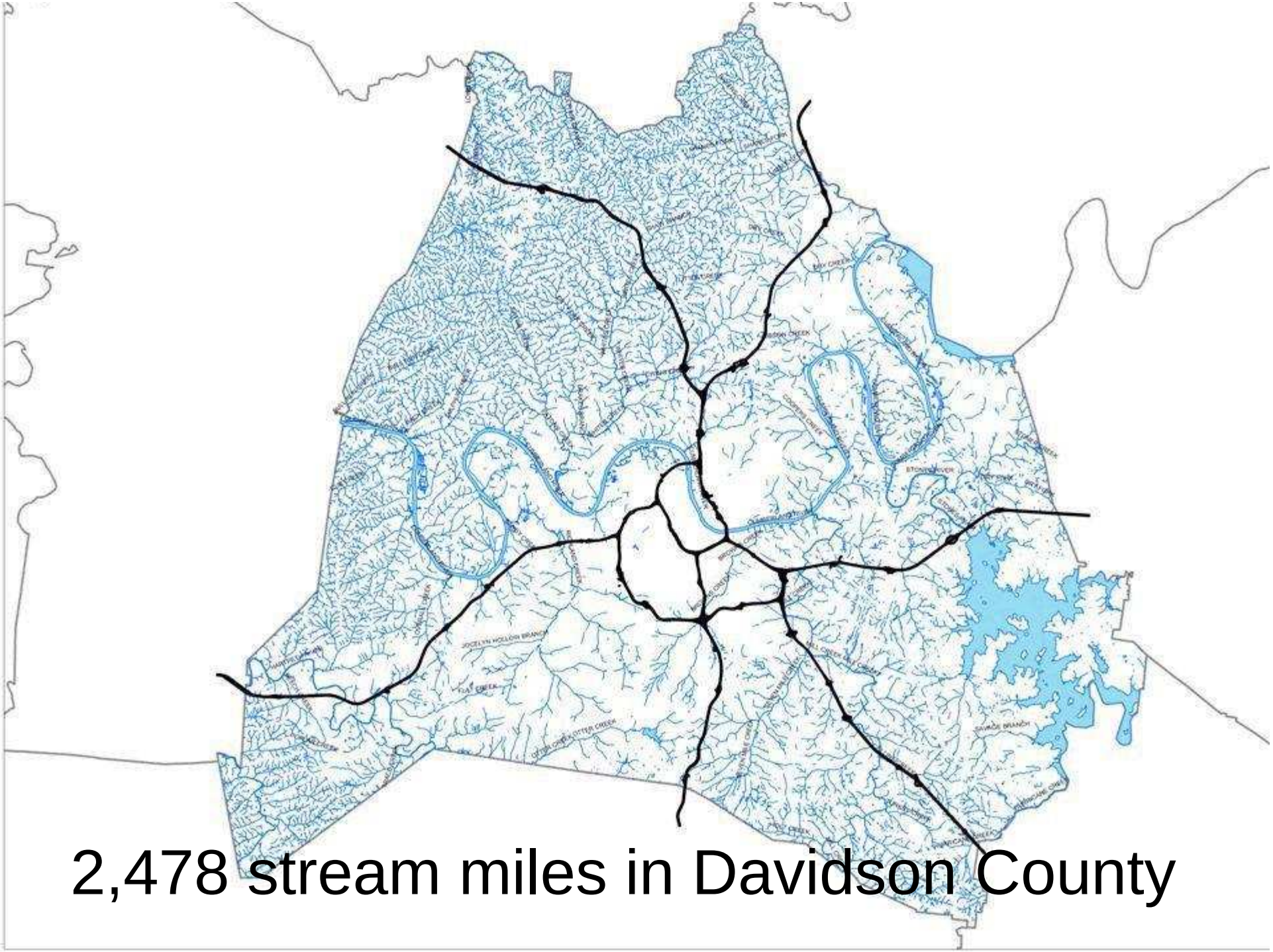
- Nashville is fourth largest MS4 system in nation
  - 473 square miles
  - 546,719 population
  - 9,703 outfalls
- Metro-owned stormwater system components
  - Catch basins, area drains, headwalls > **38,000 inlets**
  - Channels > 3,900 miles
  - Pipes > 600 miles
  - Culverts > 100 miles

  4,000 miles of system
  - Detention ponds / BMPs > **3,000 structures**

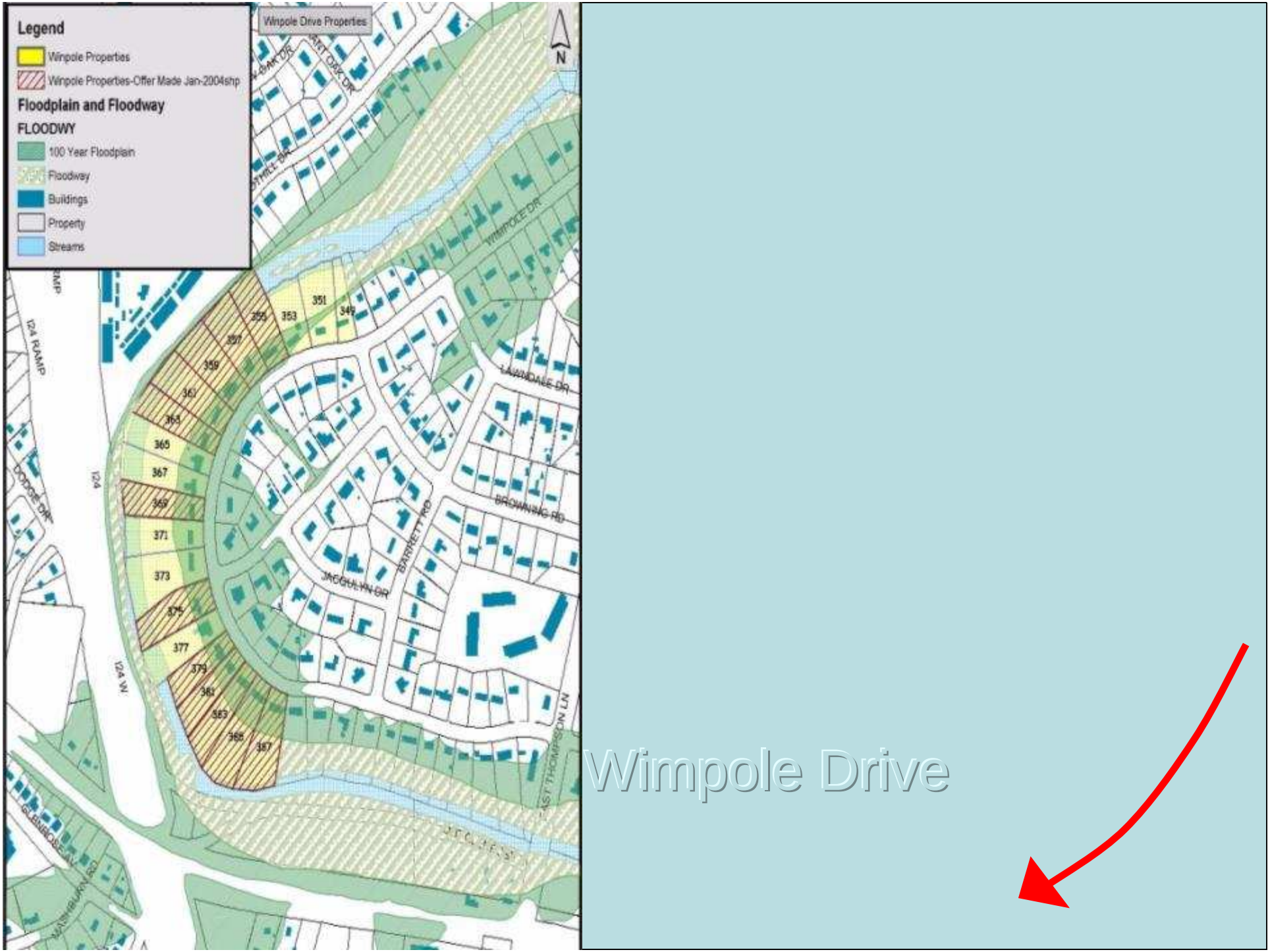
Water Quality

Heron Rookery

Bald Eagle



2,478 stream miles in Davidson County


Legend
Wimpole Properties
Wimpole Properties-Offer Made Jan-2004shp
Floodplain and Floodway
FLOODWY
100 Year Floodplain
Floodway
Buildings
Property
Streams
Wimpole Drive Properties
N
WIMPOLE DR
LAWNDALE DR
BROWNING RD
BARRETT RD
JACQUELYN DR
I24 RAMP
I24
I24 W
DODGE DR
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Wimpole Drive

Routine Maintenance

Inside of a 4 ft. x 8 ft. box culvert – fully filled with debris

Nearly obstructed culvert

Routine Maintenance

Debris, deposits, and growth in channel

Lawnmower, child's toy, etc.

Capital Construction

- Capital construction requires planning and design
- Might include:
  - Culvert replacement
  - Headwall replacement
  - Replacing damaged, deteriorated, rotted pipes
  - Increasing capacities
  - Constructing infrastructure where none existed

Capital Construction

Trousdale Road at Hogan Drive

Capital Construction

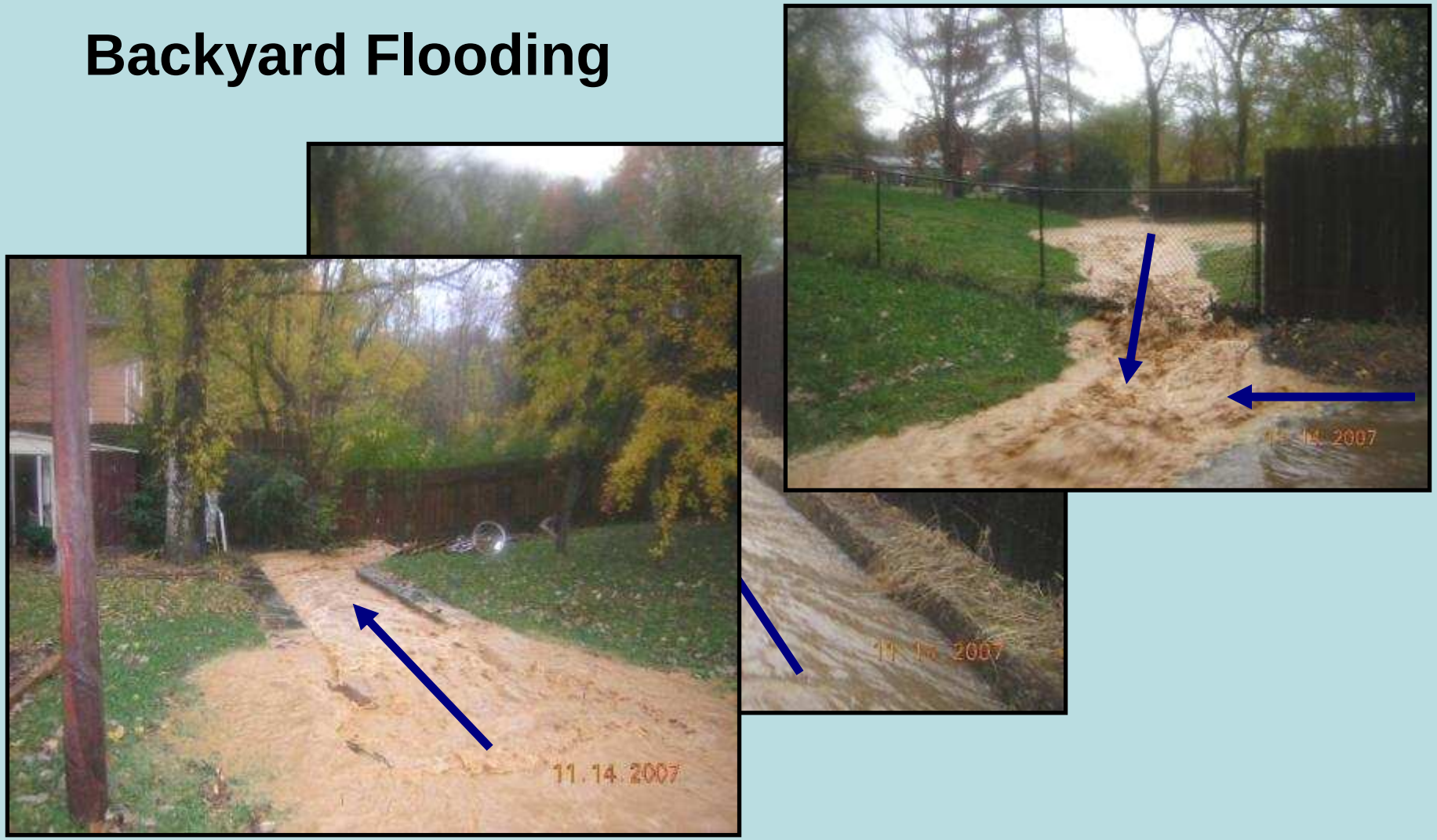
- 45% of pipes are corrugated metal (CMP)
  - Lifespan of 5-25 yrs.
  - Bottoms rust and deteriorate, weakening and sinking
  - Occurs under roads, causing potholes, sometimes complete failure

Pending Project

Stormwater Impacting Road Safety

Pending Project

Backyard Flooding



Pending Project

Chronic Neighborhood Flooding

Ditches and infrastructure need repair

Consequences of No Action

- EPA fines
- Increased flooding and pollution
- Increased costs of repairs

All of this results in a diminishing quality of life for our citizens

Where We Are

- Nashville's last rate increase was in 1996
- Residential water rates were reduced in 1999
- 2007 revenue enhancements
- Zero bonding capacity for improvements
- Lack of a comprehensive watershed strategy
- Stricter regulatory environment

Analysis

- Benchmarking Study
- Capital Improvement Plan Review

Findings of Benchmarking Study

- On most measures, MWS scored at or below the average shown for other utilities.
- Expenses compared favorably for water and sewer.
- Capital needs were above average for sewer.
- **Conclusion: No evidence that costs or capital needs are out of line with other utilities of comparable size.**

Capital Improvement Plan Review

Review CIP development process

- Project identification
- Project prioritization
- Project development and cost estimating

Affirm or recommend changes to the CIP Process

- Evaluate reasonableness of CIP cost estimates and funding level

Categorize CIP projects as:

- Regulatory
- Repair and maintenance
- Growth
- Other

CIP Review Recommendations

- Fully fund the five-year CIP with a dedicated and consistent funding source
- Continue utilizing the revised Project Prioritization Process as a year-round practice
- Establish a formal 10-year needs assessment to serve as input to the five-year CIP

CleanWaterInfrastructureProgram

Comprehensive Plan

- Water and sewer rate increase
- Propose a new stormwater fee
- Reduce capacity fee
- Reduce late fees
- Fully fund water, sewer and stormwater capital for the next five years

Water/Sewer Rates

Proposed Rate Adjustments

	FY 2010	FY 2011	FY 2012
Water	5%	5%	5%
Sewer	9%	8%	7%
Combined Adjustment	**7.8%**	**7.1%**	**6.5%**

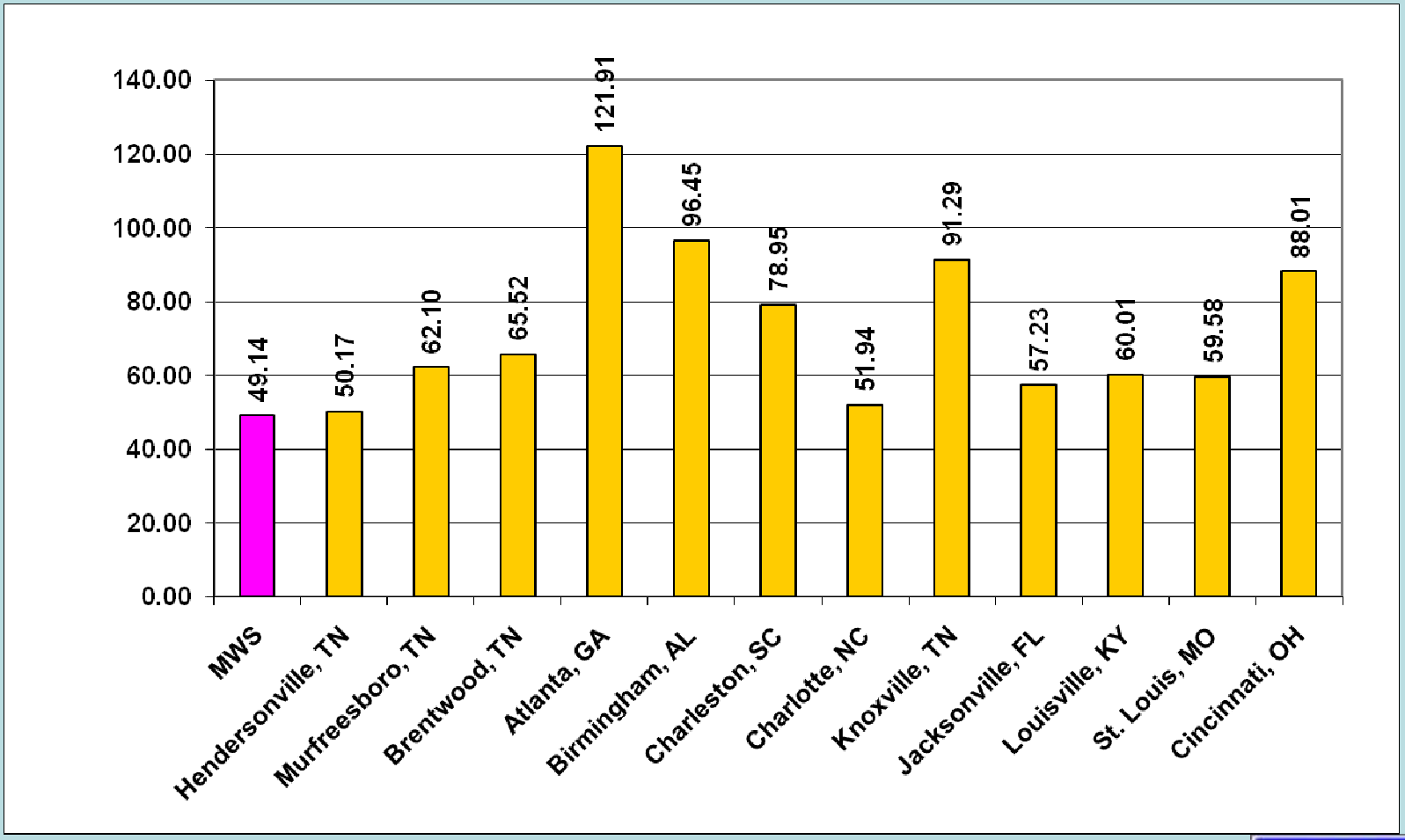
Impact on Rate Payers

	FY 2009	FY 2010
Water bill	$16.77	$17.61
Sewer bill	$32.37	$35.29
Total bill	$49.14*	$52.90*

*Assumes residential customer with 5/8” meter and 9 ccf monthly water consumption

Peer City Combined Water and Sewer Rate Comparison

Based on Residential Service 5/8" Meter, 9ccf or 6,732.5 Gal Consumption



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Other Modifications

- Reduced late fee
  - Greater of $2.50 or 5%
  - Change grace period from 15 to 20 days
- Reduced capacity fees
  - Water and sewer reduced 50%
- Equitable stormwater funding

Residential Stormwater Rates

0-400 sq. ft.	$ 0.00
400-2,000 sq. ft.	$ 1.50
2,000-6,000 sq. ft.	$ 3.00
> 6,000 sq. ft.	$ 4.50

Monthly rates based on amount of impervious square footage

Non-Residential Stormwater Rates

0-400 sq. ft.	$ 0.00
400-12,800 sq. ft.	$ 20.00
12,800-51,200 sq. ft.	$ 40.00
51,200-300,000 sq. ft.	$100.00
300,000 sq. ft.-1 million sq. ft.	$200.00
> 1 million sq. ft.	$400.00

Monthly rates based on amount of impervious square footage

Non-Residential Stormwater Credits

- Quality
- Quantity
- Education

Impact on Rate Payers

	FY 2009	FY 2010
Water bill	$16.77	$17.61
Sewer bill	$32.37	$35.29
Stormwater fee		$ 3.00
Total bill	$49.14*	$55.90*

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Rate Adjustments Will Fund

- $500 million of water and sewer capital projects over the next five years
- Stormwater operations
- $50 million of stormwater capital projects over the next five years
- Additional funding for “C” projects and home buyout program

Return On Investment

- Environmental stewardship
- Public health and safety
- Economic benefits
- Infrastructure improvement

Visit

http://www.nashville.gov/water/cwip

for more information